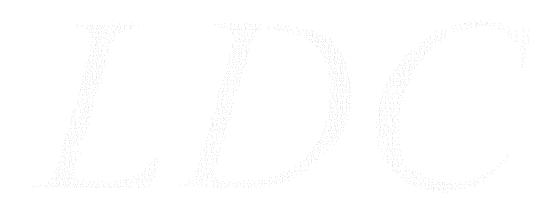
Ballfields Parcels at DoDHF Novato, CA Data Validation Reports LDC# 13575

Explosives



Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: Ballfields Parcels at DoDHF Novato, CA

Collection Date: April 5, 2005

LDC Report Date: June 14, 2005

Matrix: Soil

Parameters: Explosives

Validation Level: NFESC Level III & IV

Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K2502499

Sample Identification

TO63-191-SB03-0-0.5

TO63-191-SB01-0-0.5**

TO63-191-SB02-0-0.5

TO63-193-SB01-0-0.5

TO63-193-SB03-0-0.5

TO63-193-SB03-0-0.5Dup

TO63-193-SB02-0-0.5

TO63-191-SB03-0-0.5MS

TO63-191-SB03-0-0.5MSD

^{**} Indicates sample underwent EPA Level IV review

Introduction

This data review covers 9 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8330 for Explosives.

The review follows the Final Sampling and Analysis Plan for Preliminary Assessment/Site Investigation of Ballfields Parcels at DoDHF Novato, California, (March 23, 2005) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent NFESC Level IV review. NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

Introduction

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I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

a. Initial Calibration

Initial calibration of compounds was performed for the primary (quantitation) column and confirmation column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention times (RT) of all compounds in the calibration standards were within QC limits for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples on which a NFESC Level III review was performed.

b. Calibration Verification

Calibration verification was performed at the required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

Retention times (RT) of all compounds in the calibration standards were within QC limits for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples on which a NFESC Level III review was performed.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No explosive contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
KWG0506067-4	4/14/05	2-Nitrotoluene	0.11 mg/Kg	All samples in SDG K2502499

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
TO63-193-SB02-0-0.5	2-Ntrotoluene	0.12 mg/Kg	2.3U mg/Kg

IV. Accuracy and Precision Data

a. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

b. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

c. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Target Compound Identification

All target compound identifications were within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

VII. System Performance

The system performance was within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

Samples T063-193-SB03-0-0.5 and T063-193-SB03-0-0.5Dup were identified as field duplicates. No explosives were detected in any of the samples with the following exceptions:

	Concentra		
Compound	TO63-193-SB03-0-0.5	TO63-193-SB03-0-0.5Dup	RPD
нмх	2.5U	0.69	200
2,6-Dinitrotoluene	2.5U	0.20	200

X. Field Blanks

No field blanks were identified in this SDG.

Ballfields Parcels at DoDHF Novato, CA Explosives - Data Qualification Summary - SDG K2502499

No Sample Data Qualified in this SDG

Ballfields Parcels at DoDHF Novato, CA Explosives - Laboratory Blank Data Qualification Summary - SDG K2502499

SDG	Sample	Compound	Modified Final Concentration	A or P
K2502499	TO63-193-SB02-0-0.5	2-Nitrotoluene	2.3U mg/Kg	А

Analytical Results

Client:

Battelle Memorial Institute Novato Ballfields/G486063

Project: Sample Matrix:

Soil

Service Request: K2502499 Date Collected: 04/05/2005

Date Received: 04/07/2005

Nitroaromatics and Nitramines (Explosives)

Sample Name:

T063-191-SB03-0-0.5

Lab Code:

K2502499-001

Extraction Method:

METHOD

Analysis Method:

8330

Units: mg/Kg Basis: Dry

Level: Low

A. I. d. Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Analyte Name	0.23 JN	2.2	0.077	1	04/14/05	04/17/05	KWG0506067	
HMX	ND U	2.2	0.11	100	04/14/05	04/17/05	KWG0506067	
RDX	ND U	2.2	0.072	ĺ	04/14/05	04/17/05	KWG0506067	
1,3,5-Trinitrobenzene	ND U	2.2	0.061	1	04/14/05	04/17/05	KWG0506067	
1,3-Dinitrobenzene	ND U	2.2	0.092	ı 1	04/14/05	04/17/05	KWG0506067	
TETRYL	ND U	2.2	0.083	1	04/14/05	04/17/05	KWG0506067	
Nitrobenzene		2.2	0.086	1	04/14/05	04/17/05	KWG0506067	
4-Amino-2,6-dinitrotoluene	ND U	2.2	0.030	1	04/14/05	04/17/05	KWG0506067	
2-Amino-4,6-dinitrotoluene	ND U		0.11	1	04/14/05	04/17/05	KWG0506067	
2,4,6-Trinitrotoluene	ND U	2.2		1			KWG0506067	
2,6-Dinitrotoluene	ND U	2.2	0.11	1	04/14/05	04/17/05		
2.4-Dinitrotoluene	ND U	2.2	0.064	1	04/14/05	04/17/05	KWG0506067	
2-Nitrotoluene	ND U	2.2	0.11	1	04/14/05	04/17/05	KWG0506067	
	ND U	2.2	0.14	1	04/14/05	04/17/05	KWG0506067	
4-Nitrotoluene 3-Nitrotoluene	ND U	2.2	0.12	1	04/14/05	04/17/05	KWG0506067	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1-Chloro-3-nitrobenzene	93	67-119	04/17/05	Acceptable

Comments:

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Form 1A - Organic

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SuperSet Reference:

RR47208

Analytical Results

Client:

Battelle Memorial Institute

Project:

Novato Ballfields/G486063

Sample Matrix:

Soil

Service Request: K2502499

Date Collected: 04/05/2005 Date Received: 04/07/2005

Nitroaromatics and Nitramines (Explosives)

Sample Name:

T063-191-SB01-0-0.5

Lab Code:

Extraction Method:

METHOD

K2502499-002

Analysis Method:

8330

Units: mg/Kg Basis: Dry

Level: Low

				Dilution	Date	Date	Extraction	
	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Analyte Name		2.3	0.076	1	04/14/05	04/17/05	KWG0506067	
HMX	ND U	2.3	0.11	Ī	04/14/05	04/17/05	KWG0506067	
RDX	ND U	2.3	0.070	1	04/14/05	04/17/05	KWG0506067	
1,3,5-Trinitrobenzene	ND U			1	04/14/05	04/17/05	KWG0506067	
1,3-Dinitrobenzene	ND U	2.3	0.060	1	04/14/05	04/17/05	KWG0506067	
TETRYL	ND U	2.3	0.090	1	04/14/05	04/17/05	KWG0506067	
Nitrobenzene	ND U	2.3	0.082	1		04/17/05	KWG0506067	
4-Amino-2,6-dinitrotoluene	ND U	2.3	0.084	1	04/14/05	04/17/05	KWG0506067	
2-Amino-4,6-dinitrotoluene	ND U	2.3	0.11	1	04/14/05	04/17/05	KWG0506067	
2,4,6-Trinitrotoluene	ND U	2.3	0.089	1	04/14/05			
	ND U	2.3	0.11	1	04/14/05	04/17/05	KWG0506067	
2,6-Dinitrotoluene	ND U	2.3	0.063	1	04/14/05	04/17/05	KWG0506067	
2,4-Dinitrotoluene	ND U	2.3	0.11	1	04/14/05	04/17/05	KWG0506067	
2-Nitrotoluene	ND U	2,3	0.13	1	04/14/05	04/17/05	KWG0506067	
4-Nitrotoluene	ND U	2.3	0.12	1	04/14/05	04/17/05	KWG0506067	
3-Nitrotoluene	ND U	2.5	0.12	-				

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1-Chloro-3-nitrobenzene	88	67-119	04/17/05	Acceptable

Comments:

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Form 1A - Organic

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Analytical Results

Client:

Battelle Memorial Institute Novato Ballfields/G486063

Project: Sample Matrix:

Soil

Service Request: K2502499

Date Collected: 04/05/2005 Date Received: 04/07/2005

Nitroaromatics and Nitramines (Explosives)

Sample Name:

T063-191-SB02-0-0.5

Lab Code:

K2502499-003

Extraction Method:

METHOD

Units: mg/Kg Basis: Dry

Level: Low

Analysis Method:	8330

	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Analyte Name		2.5	0.088	1	04/14/05	04/17/05	KWG0506067	
HMX	ND U	2.5	0.12	1	04/14/05	04/17/05	KWG0506067	
RDX	ND U	2.5	0.081	1	04/14/05	04/17/05	KWG0506067	
1,3,5-Trinitrobenzene	ND U			1	04/14/05	04/17/05	KWG0506067	
1,3-Dinitrobenzene	ND U	2.5	0.069	1	04/14/05	04/17/05	KWG0506067	
TETRYL	ND U	2.5	0.11	1	04/14/05	04/17/05	KWG0506067	
Nitrobenzene	ND U	2.5	0.095	<u> </u>		04/17/05	KWG0506067	
4-Amino-2,6-dinitrotoluene	ND U	2.5	0.097	1	04/14/05	04/17/05	KWG0506067	
2-Amino-4,6-dinitrotoluene	ND U	2.5	0.12	1	04/14/05		KWG0506067	
2,4,6-Trinitrotoluene	ND U	2.5	0.11	1	04/14/05	04/17/05		
	ND U	2.5	0.13	1	04/14/05	04/17/05	KWG0506067	
2,6-Dinitrotoluene	ND U	2.5	0.073	1	04/14/05	04/17/05	KWG0506067	
2,4-Dinitrotoluene	ND U	2.5	0.12	1	04/14/05	04/17/05	KWG0506067	
2-Nitrotoluene		2.5	0.15	1	04/14/05	04/17/05	KWG0506067	
4-Nitrotoluene	ND U ND U	2.5	0.14	1	04/14/05	04/17/05	KWG0506067	
3-Nitrotoluene	ND U	2.5	0,14	-				

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1-Chloro-3-nitrobenzene	88	67-119	04/17/05	Acceptable

Comments:

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Page RR47208 SuperSet Reference:

Analytical Results

Battelle Memorial Institute Client: Novato Ballfields/G486063 Project:

Soil Sample Matrix:

Service Request: K2502499 Date Collected: 04/05/2005 Date Received: 04/07/2005

Nitroaromatics and Nitramines (Explosives)

T063-193-SB01-0-0.5 Sample Name: K2502499-004 Lab Code:

METHOD Extraction Method: 8330 Analysis Method:

Units: mg/Kg Basis: Dry Level: Low

Page

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				Dilution	Date	Date	Extraction	
	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Analyte Name	ND U	2.6	0.092	1	04/14/05	04/17/05	KWG0506067	
HMX	ND U	2.6	0.13	1	04/14/05	04/17/05	KWG0506067	
RDX	ND U	2.6	0.085	1	04/14/05	04/17/05	KWG0506067	
1,3,5-Trinitrobenzene	ND U	2,6	0.072	1	04/14/05	04/17/05	KWG0506067	
1,3-Dinitrobenzene	ND U	2.6	0.11	1	04/14/05	04/17/05	KWG0506067	
TETRYL	ND U	2.6	0.099	1	04/14/05	04/17/05	KWG0506067	
Nitrobenzene	ND U	2.6	0.11	1	04/14/05	04/17/05	KWG0506067	
4-Amino-2,6-dinitrotoluene	ND U	2.6	0.13	1	04/14/05	04/17/05	KWG0506067	
2-Amino-4,6-dinitrotoluene	ND U	2.6	0.11	1	04/14/05	04/17/05	KWG0506067	
2,4,6-Trinitrotoluene	ND U	2.6	0.13	1	04/14/05	04/17/05	KWG0506067	
2,6-Dinitrotoluene	ND U	2.6	0.077	1	04/14/05	04/17/05	KWG0506067	
2,4-Dinitrotoluene	ND U	2.6	0.13	1	04/14/05	04/17/05	KWG0506067	
2-Nitrotoluene		2.6	0.16	1	04/14/05	04/17/05	KWG0506067	
4-Nitrotoluene	ND U	2.6	0.14	1	04/14/05	04/17/05	KWG0506067	
3-Nitrotoluene	ND U	2.0	0.14	-				

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
1-Chloro-3-nitrobenzene	88	67-119	04/17/05	Acceptable	

Comments:

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Analytical Results

Client:

Battelle Memorial Institute

Project:

Novato Ballfields/G486063

Sample Matrix:

Soil

Service Request: K2502499

Date Collected: 04/05/2005 Date Received: 04/07/2005

Nitroaromatics and Nitramines (Explosives)

Sample Name:

T063-193-SB03-0-0.5

Lab Code:

K2502499-005

Extraction Method: Analysis Method:

METHOD 8330

Units: mg/Kg Basis: Dry

Level: Low

			Dilution	Date	Date	Extraction	
Result O	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
			1	04/14/05	04/17/05	KWG0506067	
			- Pane	04/14/05	04/17/05	KWG0506067	
			1		04/17/05	KWG0506067	
					04/17/05	KWG0506067	
			1				
			1				
ND U	2.5	0.092	1				
ND U	2.5	0.095	1				
ND U	2.5	0.12	1				
ND U	2.5	0.10	1	04/14/05	04/17/05		
	2.5	0.13	1	04/14/05	04/17/05		
		0.071	1	04/14/05	04/17/05	KWG0506067	
			1	04/14/05	04/17/05	KWG0506067	
			1	04/14/05	04/17/05	KWG0506067	
-			1			KWG0506067	
ND U	2.5	0.13	1	04/14/05	0 2 0 0		
	Result Q ND U ND U	ND U 2.5	ND U 2.5 0.086 ND U 2.5 0.12 ND U 2.5 0.079 ND U 2.5 0.067 ND U 2.5 0.092 ND U 2.5 0.095 ND U 2.5 0.12 ND U 2.5 0.12 ND U 2.5 0.12 ND U 2.5 0.12 ND U 2.5 0.10 ND U 2.5 0.10 ND U 2.5 0.13 ND U 2.5 0.071 ND U 2.5 0.12 ND U 2.5 0.15	Result Q MRL MDL Factor ND U 2.5 0.086 1 ND U 2.5 0.12 1 ND U 2.5 0.079 1 ND U 2.5 0.067 1 ND U 2.5 0.092 1 ND U 2.5 0.092 1 ND U 2.5 0.12 1 ND U 2.5 0.12 1 ND U 2.5 0.13 1 ND U 2.5 0.071 1 ND U 2.5 0.12 1 ND U 2.5 0.12 1 ND U 2.5 0.12 1	Result Q MRL MDL Factor Extracted ND U 2.5 0.086 1 04/14/05 ND U 2.5 0.12 1 04/14/05 ND U 2.5 0.079 1 04/14/05 ND U 2.5 0.067 1 04/14/05 ND U 2.5 0.11 1 04/14/05 ND U 2.5 0.092 1 04/14/05 ND U 2.5 0.12 1 04/14/05 ND U 2.5 0.12 1 04/14/05 ND U 2.5 0.13 1 04/14/05 ND U 2.5 0.071 1 04/14/05 ND U 2.5 0.12 1 04/14/05	Result Q MRL MDL Factor Extracted Analyzed ND U 2.5 0.086 1 04/14/05 04/17/05 ND U 2.5 0.12 1 04/14/05 04/17/05 ND U 2.5 0.079 1 04/14/05 04/17/05 ND U 2.5 0.067 1 04/14/05 04/17/05 ND U 2.5 0.11 1 04/14/05 04/17/05 ND U 2.5 0.092 1 04/14/05 04/17/05 ND U 2.5 0.095 1 04/14/05 04/17/05 ND U 2.5 0.12 1 04/14/05 04/17/05 ND U 2.5 0.13 1 04/14/05 04/17/05 ND U 2.5 0.071 1 04/14/05 04/17/05 ND U 2.5 0.12 1 04/14/05 04/17/05 ND U 2.5 0.12 1 04/14/05 04/17/05	Result Q MRL MDL Factor Extracted Analyzed Lot ND U 2.5 0.086 1 04/14/05 04/17/05 KWG0506067 ND U 2.5 0.12 1 04/14/05 04/17/05 KWG0506067 ND U 2.5 0.079 1 04/14/05 04/17/05 KWG0506067 ND U 2.5 0.067 1 04/14/05 04/17/05 KWG0506067 ND U 2.5 0.11 1 04/14/05 04/17/05 KWG0506067 ND U 2.5 0.092 1 04/14/05 04/17/05 KWG0506067 ND U 2.5 0.12 1 04/14/05 04/17/05 KWG0506067 ND U 2.5 0.12 1 04/14/05 04/17/05 KWG0506067 ND U 2.5 0.13 1 04/14/05 04/17/05 KWG0506067 ND U 2.5 0.13 1 04/14/05 04/17/05 KWG0506067 ND U

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
1-Chloro-3-nitrobenzene	85	67-119	04/17/05	Acceptable	

Comments:

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Form 1A - Organic

SuperSet Reference:

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Analytical Results

Client:

Battelle Memorial Institute

Project:

Novato Ballfields/G486063

Sample Matrix:

Soil

Service Request: K2502499

Date Collected: 04/05/2005 Date Received: 04/07/2005

Nitroaromatics and Nitramines (Explosives)

Sample Name:

T063-193-SB03-0-0.5 DUP

Lab Code:

K2502499-006

Extraction Method: Analysis Method:

METHOD 8330

Units: mg/Kg Basis: Dry

Level: Low

N. D.	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Analyte Name		2.7	0.088	1	04/14/05	04/17/05	KWG0506067	
HMX	0.69 JN	2.7	0.12	1	04/14/05	04/17/05	KWG0506067	
RDX	ND U			1	04/14/05	04/17/05	KWG0506067	
1,3,5-Trinitrobenzene	ND U	2.7	0.082				KWG0506067	
1,3-Dinitrobenzene	ND U	2.7	0.069	1	04/14/05	04/17/05		
	ND U	2.7	0.11	1	04/14/05	04/17/05	KWG0506067	
TETRYL	ND U	2.7	0.095	1	04/14/05	04/17/05	KWG0506067	
Nitrobenzene		2.7	0.098	1	04/14/05	04/17/05	KWG0506067	
4-Amino-2,6-dinitrotoluene	ND U			1	04/14/05	04/17/05	KWG0506067	
2-Amino-4,6-dinitrotoluene	ND U	2.7	0.12	1	04/14/05	04/17/05	KWG0506067	
2,4,6-Trinitrotoluene	ND U	2.7	0.11	1				
	0.20 JN	2.7	0.13	1	04/14/05	04/17/05	KWG0506067	
2,6-Dinitrotoluene	ND U	2.7	0.073	1	04/14/05	04/17/05	KWG0506067	
2,4-Dinitrotoluene	ND U	2.7	0.12	1	04/14/05	04/17/05	KWG0506067	
2-Nitrotoluene				1	04/14/05	04/17/05	KWG0506067	
4-Nitrotoluene	ND U	2.7	0.15	1		04/17/05	KWG0506067	
3-Nitrotoluene	ND U	2.7	0.14	1	04/14/05	04/1//03	10110000007	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
1-Chloro-3-nitrobenzene	85	67-119	04/17/05	Acceptable	

Comments:

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Form 1A - Organic

SuperSet Reference:

RR47208

Analytical Results

Client:

Battelle Memorial Institute

Project:

Novato Ballfields/G486063

Sample Matrix:

Soil

Service Request: K2502499 Date Collected: 04/05/2005

Date Received: 04/07/2005

Nitroaromatics and Nitramines (Explosives)

Sample Name:

T063-193-SB02-0-0.5

Lab Code:

K2502499-007

Extraction Method: Analysis Method:

METHOD 8330

Units: mg/Kg Basis: Dry

Level: Low

				Dilution	Date	Date	Extraction	
	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Analyte Name		2.3	0.075	1	04/14/05	04/17/05	KWG0506067	
HMX	ND U	2.3	0.079	î	04/14/05	04/17/05	KWG0506067	
RDX	ND U		0.069	1	04/14/05	04/17/05	KWG0506067	
1,3,5-Trinitrohenzene	ND U	2.3		1	04/14/05	04/17/05	KWG0506067	
1,3-Dinitrobenzene	ND U	2.3	0.059	1	04/14/05	04/17/05	KWG0506067	
TETRYL	ND U	2.3	0.089	1	04/14/05	04/17/05	KWG0506067	
Nitrobenzene	ND U	2.3	0.081	1			KWG0506067	
4-Amino-2,6-dinitrotoluene	ND U	2.3	0.083	1	04/14/05	04/17/05	KWG0506067	
2-Amino-4,6-dinitrotoluene	ND U	2.3	0.11	1	04/14/05	04/17/05	KWG0506067	
	ND U	2.3	0.088	1	04/14/05	04/17/05		
2,4,6-Trinitrotoluene	ND U	2.3	0.11	1	04/14/05	04/17/05	KWG0506067	
2,6-Dinitrotoluene	ND U	2.3	0.063	1	04/14/05	04/17/05	KWG0506067	
2,4-Dinitrotoluene	0.12 JN 2,3V		0.10	1	04/14/05	04/17/05	KWG0506067	
2-Nitrotoluene		<u> </u>	0.13	1	04/14/05	04/17/05	KWG0506067	
4-Nitrotoluene	ND U	2.3	0.13	1	04/14/05	04/17/05	KWG0506067	
3-Nitrotoluene	ND U	2.3	0.12	1	0.,11,00			

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
1-Chloro-3-nitrobenzene	88	67-119	04/17/05	Acceptable	

Comments:

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Form 1A - Organic

1 of 1 Page

Merged

LDC #: 13575B40 VALIDATION COMPLETENESS WORKSHEET

SDG #: K2502499

Level III/IV

Laboratory: Columbia Analytical Services

Page: /of / Reviewer: 4 2nd Reviewer: 4

METHOD: HPLC Explosives (EPA SW 846 Method 8330)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	4	Sampling dates: 4/5/05
lla.	Initial calibration	A	, /
IIb.	Calibration verification	A	
111.	Blanks	W	
IVa.	Surrogate recovery	4	
IVb.	Matrix spike/Matrix spike duplicates	\forall	
IVc.	Laboratory control samples	4	105
V.	Target compound identification	4	Not reviewed for Level III validation.
VI.	Compound Quantitation and CRQLs	4	Not reviewed for Level III validation.
VII.	System Performance	4	Not reviewed for Level III validation.
VIII.	Overall assessment of data	4	
IX.	Field duplicates	W	D=5+6
X.	Field blanks	N	

Note:

A = Acceptable

ND = No compounds detected

D = Duplicate TB = Trip blank

N = Not provided/applicable SW = See worksheet R = Rinsate FB = Field blank

EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

M	2012					
1	TO63-191-SB03-0-0.5	11	KW4050606T-4	21	31	
2	TO63-191-SB01-0-0.5**	12	The state of the s	22	32	
3	TO63-191-SB02-0-0.5	13		23	33	
4	TO63-193-SB01-0-0.5	14		24	 34	
5 ,	TO63-193-SB03-0-0.5	15		25	35	
6	TO63-193-SB03-0-0.5Dup	16		26	 36	
7	TO63-193-SB02-0-0.5	17		27	37	
8	TO63-191-SB03-0-0.5MS	18		28	38	
9	TO63-191-SB03-0-0.5MSD	19		29	39	
10		20		30	40	

votes:			

LDC#:/3575B40 SDG#:<u>k>5a2499</u>

VALIDATION FINDINGS CHECKLIST

Method: GC HPLC	Yes	No	NA	Findings/Comments
Validation Area	165	IAO	147	
Technical holding times	\neg			
all technical holding times were met.			<u> </u>	
cooler temperature criteria was met.				
, Initial calibration				
old the laboratory perform a 5 point calibration prior to sample analysis?		_	\vdash	
Vas a linear fit used for evaluation? If yes, were all percent relative standard eviations (%RSD) ≤ 20%?				
Vas a curve fit used for evaluation? If Yes, what was the acceptance criteria sed?				
oid the initial calibration meet the curve fit acceptance criteria?			 	
Vere the RT windows properly established?				
V. Continuing calibration			T	T
What type of continuing calibration calculation was performed?%D or %R				
Vas a continuing calibration analyzed daily?			-	
Vere all percent differences (%D) ≤ 15%.0 or percent recoveries 85-115%?			-	
Were all the retention times within the acceptance windows?				
/, Blanks		, T	1	
Was a method blank associated with every sample in this SDG?			-	
Was a method blank analyzed for each matrix and concentration?		<u> </u>	┿	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	/	1		
VI. Surrogate spikes			-	
Were all surrogate %R within the QC limits?		1_		
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?				
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			\bot	
VII. Matrix spike/Matrix spike duplicates	_	·		T
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated		-		
MS/MSD. Soil / Water.	1	1	\top	
Was a MS/MSD analyzed every 20 samples of each matrix?	Ť	1		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?				
VIII. Laboratory control samples	T	1		
Was an LCS analyzed for this SDG?	+	+	-	
Was an LCS analyzed per extraction batch?	1/			

LDC #: 13575 B40 SDG #: \$2502499

VALIDATION FINDINGS CHECKLIST

Page: 20f2
Reviewer: 9
2nd Reviewer: 6

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?				
X. Regional Quality Assurance and Quality Control			FT	
Were performance evaluation (PE) samples performed?	-			
Were the performance evaluation (PE) samples within the acceptance limits?				
X. Target compound identification Were the retention times of reported detects within the RT windows?	I			
XI. Compound quantitation/CRQLs	1	ı —		
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?				
XII. System performance		T	1	
System performance was found to be acceptable.				
XIII. Overall assessment of data		4	1	
Overall assessment of data was found to be acceptable.				
XIV. Field duplicates			_	
Were field duplicate pairs identified in this SDG?		1	<u> </u>	
Were target compounds idetected in the field duplicates?				
XV. Field blanks			-T	1
Were field blanks identified in this SDG?		(1	
Were target compounds detected in the field blanks?			/	

VALIDATION FINDINGS WORKSHEET

METHOD: GC / HPLC

8310	8330	8151	80Z1B	
A. Acenaphthene	A. HMX	A. 2,4-D	V. Benzene	
B. Acenaphthylene	B. RDX	B. 2,4-0B	CC. Toluene	
C. Anthracene	C. 1,3,5-Trinitrobenzene	C. 2,4,5-T	EE, Ethyl Benzene	
D. Berzo(a)anthracene	D. 1,3-Dinitrobenzene	D. 2,4,5-TP	SSS. C-Xylene	
E. Benzo(a)pyrene	E. Tetryi	E. Dinoseb	RRR. MP-Xylene	
F. Benzo(b)fluoranthene	F. Nitrobenzene	F. Dichlorprop	GG. Total Xylene	
G. Benzo(g,h,i)perylene	G. 2.4.6-Trinitrotoluene	G. Dicamba	LL. MTBE	
H. Benzo(k)fluoranthene	H. 4-Amino-2,6-dinitrotoluene	H. Dalapon		
1. Chrysene	l. 2-Amino-4,6-dinitrotoluene	I. MCPP		
J. Dibenz(a,h)anthracene	J. 2,4-Dinitrotolune	J. MCPA		
K. Fluoranthene	K. 2,6-Dinitrotoluene	K. Pentachlorophenol		
L. Fluorene	L. 2-Nitrotoluene	T		
M. Indeno(1,2,3-cd)pyrene	M. 3-Nitrotoluene	M.		
N. Naphthalene	N. 4-Nitrotcluene			
O. Phenanthrene	О.			
P. Pyrene				
	O			
R.				
S,				

LSTNEW.WPD

Notes:_

LDC#: 135 13 Pto SDG #: 1-35 22479

VALIDATION FINDINGS WORKSHEET Blanks

2nd Reviewer:	<u>~</u>		1											OCHINICALINA PROGRAMA IN CONTRACTORI DELL'ANTICO CONTRACTORI CONTR	
	ffications below for all questions answered "N". Not applicable questions are identified as "N/A". Were all samples associated with a given method blank? Was a method blank performed for each matrix and whenever a sample extraction procedure was performed? Was a method blank performed with each extraction batch? Were any contaminants found in the method blanks? If yes, please see findings below.	th each 24 hour batch? atch of ≤20 samples? Associated samples:	Sample Identification					Associated samples:	Sample Identification						
مَّا	Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A". Y N/A Was a method blank performed for each matrix and whenever a sample extraction procedure with a contaminants found in the method blanks? If yes, please see findings below.	(Gasoline and aromatics only)Was a method blank analyzed with each 24 hour batch? Was a method blank analyzed for each analytical / extraction batch of ≤20 samples? In date: 4/4/0 S Blank analysis date: 4/6/0 S Associated		7 7	0.12/2.34			Blank analysis date:							
GC HPLC	ifications below for all questions ar Were all samples associated with Was a method blank performed fo Was a method blank performed w Were any contaminants found in t	Inly (Gasoline and aromatics only)Wa: Was a method blank analyzed for tion date: 4/4/05 Blank analy	und Blank ID	EN/AUS	11.0					ound Blank ID	AND THE PROPERTY OF THE PROPER		THE THE PROPERTY OF THE PROPER		
SDG #: <25047	Please see qua	Y N N/A (Gasoline a YN N/A Was a metal Blank extraction date: A Conc. units: W5/E	Compound		2.	постопримення канализм фило Метапапан поступу на навадеме		Blank extraction date:	COEC HEES.	Compound	вальное прираженное начинай приражений приражений при приражений при приражений при приражений при приражений при	поседення в дережающим применення в дережающим примене	Annual untermeterated supplemental production of the supplemental and supp		

SDG # 42502499 LDC# 1355540

VALIDATION FINDINGS WORKSHEET Field Duplicates

Page: Zof Z Reviewer: 2nd reviewer:

Were field duplicate pairs identified in this SDG?
Were target compounds detected in the field duplicate pairs? WETHOD:

-	Concentration (Concentration (ms/)	%RPD	Qualification Parent only / All Samples
Compound	5	9		
4	2.5 0	69.0	200	дожного постанивання выполняний в серествення в серествення в серествення в серествення в серествення в серест
V	\rightarrow	050	>	
				устов в техня поставляющей в постав
				у от не в волизованию пот волизование и потерене в менения на применения в потерене в потерене в потерене в менения в менения в потерене

				manated programme in the control of
•	Concentration ((%RPD	Qualification Perent only / All Samples
Compound			Limit s	admony and and
				летінен ейе фологой организация организация организация организация организация организация организация органи
				ление должности в чествення в перевення в перевення в перевення в перевення в перевення в перевення в перевенн
				од поста инверпечения поста пост Поста поста пост
				ласта в колоничностилиство пополняти проценення на менення поставлення поставлення поставлення поставлення пост
				од община выбория выправления выправления выправления выправления выправления выправления выправления выправлен
				о в семента под
				до при при дали обернати на под поделения на при
			THE PROPERTY OF THE PERSON NAMED AND PARTY OF THE PERSON NAMED AND	

SDG #: K7522499 LDC#: 135/15/24

Initial Calibration Calculation Verification VALIDATION FINDINGS WORKSHEET

2nd Reviewer:_ Page: Reviewer:

> HPLC METHOD: GC_

The calibration Factor (CF), average CF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

average CF = sum of the CF/number of standards $\% RSD = 100 \ ^* (S/X)$ CF = A/C

A = Area of compound, C = Concentration of compound, S = Standard deviation of the CF X = Mean of the CFs

			Reported	Recalculated	Reported	Recalculated	Reported	Recalculated
# Standard ID	Calibration Date	Compound	CF (/ std)	CF (/ std)	Average CF (initial)	Average CF (initial)	%RSD	%RSD
	10/-	XX	20/188	B	90800	90800	(0.3	10.2
1	50/2/2	24.6-TNT	252000		257000	257000	75	5.4
					,			
Open Company								
	in control de control							
The state of the s								
							ende engelengen anderskalen anderskalen engelen en e	emonophysia paakadossessuspania suura s
7								
	sokolosis okuser d					Control of the Contro		
						:		

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

SDG #: K-XDO499 LDC#:135/5840

Continuing Calibration Results Verification VALIDATION FINDINGS WORKSHEET

Page: Reviewer: 2nd Reviewer:

> H C METHOD: GC

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF - CF)/avs. CF CF = A/C

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

<u></u>	***************************************			Reported	Recalculated	Reported	Recalculated
š *	Calibration Standard ID Date	Compound	Average CF(Ical)/ CCV Conc.	CF/Conc. CCV	CF/Conc. CCV	Q%	0 %
	74/1	XMX	60806	9200	920000	/	
		Z.4.6-TNT	25 poc	25500	25		
	AND						Andrew menten and an antimente security of the second second security of the second second security of the second second second security of the second
0	041/0039 11111	HMX	90800	00/86	220/26		
7	16/18/18		25/20	ocapese	254000		
			-				
3							
	ANTIQUES IN CONTROL TO A CONTRO						
WATER STATE OF THE	MANAGEMENT OF THE PROPERTY OF						
4							

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

SDG#: 423502400 UDC#: 135/15/BAP

VALIDATION FINDINGS WORKSHEET Surrogate Results Verification

Reviewer: 2nd reviewer:

METHOD: GC / HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found SS = Surrogate Spiked

Sample ID:		SS = Surrogate Spiked	0			
Surrogate	Column/Detector*	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
1-chloro-3-nitrobenzend 87x C18	RTX C18	2.5	2.19	88	8080	
						KKENINTPOTOTA KAPATA K
					COMMONEY PARAMETER AND A SECTION OF SECTION	ARREST NA CONTRA EN

Sample ID:

Percent Difference		обобобобобобот в применения в при	NORMY PRESIDENT CONTRACTOR CONTRA	
Percent Recovery	Recalculated	SALISM CONTRACTOR TO THE STATE OF THE STATE		
Percent Recovery	Reported			
Surrogate Found				
Surrogate Spiked				
Column/Detector				
Surregate				

-Cl alac

	Percent Percent Percent Recovery Recovery Difference	Reported Recalculated			
	Surrogate Surrogate Spiked Found				
	Column/Detector				
Sample ID:	Surrogate			2	

LDC#: 185/08/40 SDG#: K25024

Matrix Spike/Matrix Spike Duplicates Results Verification VALIDATION FINDINGS WORKSHEET

2nd Reviewer: Of Page: Reviewer:_

> / HPLC ပ ပ METHOD:

The percent recoveries (%R) and relative percent differences (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below

using the following calculation: %Recovery = 100 * (SSC - SC)/SA

Where

SC = Sample concentration

RPD =(((SSCMS - SSCMSD) * 2) / (SSCMS + SSCMSD))*100

SSC = Spiked sample concentration SA = Spike added MS = Matrix spike

D 10 WS/MSD samples:

MSD = Matrix spike duplicate

	THE RESIDENCE OF THE PARTY OF T	National Section of the Park Control of the Incident C								TOTAL STATE OF THE	Secretary and the secretary an
	Spik	đi.	Sample	Spike Sample	ımple	Matrix spike	spike	Matrix Spike Duplicate	Duplicate	MS/MSD	SD
Compound	Added	ĵva Ŝva	Conc.	Concentration	ration	Percent Recovery	ecovery	Percent Recovery	scovery	8	
	MS	MSD	*****	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)											de jama e da de mandere de la composition della
Benzene (8021B)											одицицияли предоставления енистей егоботем
Methane (RSK-175)											AND DESCRIPTION OF THE PROPERTY OF THE PROPERT
2,4-D (8151)											
Dinoseb (8151)											не учение на пределения пределения под пределения п
Naphthalene (8310)										TALLED BOTH THE STATE OF THE ST	
Anthracene (8310)											
HMX (8330)	N .	3/2	NG	26.9	2.70	9&	28	80	88		1
2,4,6-Trinitrotoluene (8330)	->	\Rightarrow	\rightarrow	2,2	28.3	000	18	9	0	4	4
No. an Augustus et also and an augustus de 20 mil 2000 000 000 000 000 000 000 000 000 0											
										A PARTICULAR DE LA CONTRACTOR DE LA CONT	
				· · ·					Water the second services and second s	No. of the contract of the second sec	ALONG COLUMN TO THE PROPERTY OF THE PROPERTY O
ментерия по при									SALIANO RIBONE E E POORONO POR ENVOIRENCE PROPERTO DE LA CASA DE L	And the second s	

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

SDG#: (20\$22479 LDC #: 135755

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: 2nd Reviewer:

GC VHPLC METHOD: The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA

SSC = Spiked sample concentration SA = Spike added LCS = Laboratory Control Sample Where

SC = Sample concentration

RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: KM G-0 S2606 [-

Сандурга муницинална и при при при при при при при при при п		- Constitution of the Cons						AND THE PROPERTY OF THE PROPER		AND THE PROPERTY OF THE PROPER	MACROSCOPPOS OUTSITED TO THE PROPERTY OF T
	Spike		Sample	Spike Sa	ample	SOT	2	CSD	۵	CS/FCSD	CSD
Compound	Added	<u></u>	Conc	Concentration	nother	Percent Recovery	ecovery	Percent Recovery	ecovery.	RPD	۵
	LCS	CSD	-	SOT	rcsD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
											ANNO ARTHUR ARTH
Benzene (8021B)											
Methane (RSK-175)									OONS HOLD THE COLUMN TO THE COLUMN THE COLUM	Andrew Communication and Angel Andrew Communication and Angel Ange	
2,4-D (8151)	measure and a contract of the								engelengelenenskateket Adoptionis in opensy of all and december of	унов наменальная возгражения этом воду ПО::::::::::::::::::::::::::::::::::::	
Dinoseb (8151)	The control for transmission of the control for the control fo								A CONTRACTOR OF THE PERSONS OF THE P		Manager of the Control of the Contro
Naphthalene (8310)								Separate and the separa	OS SERVICES AND THE CONTROL OF THE C	and concession and control and	
Anthracene (8310)								NI DOSCONO, CALLES CALL			
HMX (8330)	252	A		23.4	& NX	44	4	en jour principal de la constitución de la constitu			
2,4,6-Trinitrotoluene (8330)	3	->	Approximation .	23.3	<u>></u>	23	83				ESTRETANTA PARA PARA PARA PARA PARA PARA PARA PA
								trige/enterpressment construction of the const	ancedownii jenyki isenjin je tivoje privanji privanji privanji privanji	Name of the Party	NAMES OF THE PROPERTY OF THE P
									AND THE RESIDENCE OF THE PARTY	***************************************	

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LCSCLCNew.wpd

CDC#: 13575760

VALIDATION FINDINGS WORKSHEET Sample Calculation Verification

Page: __of___ Reviewer: ______ 2nd Reviewer: ______

METHOD: GC / HPLC

Were all reported results recalculated and verified for all level IV samples?
Were all recalculated results for detected target compounds agree within 10% of the reported results? Y N N/A

Were all recalculated results for detected (alger compounds agree within 10/8 of the reported results).	Example:	Sample ID. A Compound Name Name	ра	
Were all recalculated results for	(A)(Fv)(Df)	(KF)(VSOr WS)(%5/100)	A= Area or height of the compound to be measured Fv= Final Volume of extract	ō
AN NA	Concentration=	-	A= Area or height of the cor Fv= Final Volume of extract	Df= Dilution Factor

Concentration =

RF= Average response factor of the compound In the initial calibration

Vs= Initial volume of the sample Ws= Initial weight of the sample %S= Percent Solid

	•	Compound	Reported Concentrations	Recalculated Results Concentrations	Qualifications
				Separation and the separation of the separation	теритерине на поставления поставления поставления поставления поставления поставления поставления поставления п
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	A CANCELLE MAN AND AND AND AND AND AND AND AND AND A				ници неводеления и положения объемента в подавления подавления подавления подавления подавления подавления под
					да до достигности поставления в поста
мадапистичной при					

Comments:

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: Ballfields Parcels at DoDHF Novato, CA

Collection Date: April 5, 2005

LDC Report Date: June 14, 2005

Matrix: Water

Parameters: Explosives

Validation Level: NFESC Level III & IV

Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K2502575

Sample Identification

TO63-193-GW01-Dup TO63-193-GW01 TO63-191-GW01**

^{**} Indicates sample underwent EPA Level IV review

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8330 for Explosives.

The review follows the Final Sampling and Analysis Plan for Preliminary Assessment/Site Investigation of Ballfields Parcels at DoDHF Novato, California, (March 23, 2005) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent NFESC Level IV review. NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

a. Initial Calibration

Initial calibration of compounds was performed for the primary (quantitation) column and confirmation column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention times (RT) of all compounds in the calibration standards were within QC limits for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples on which a NFESC Level III review was performed.

b. Calibration Verification

Calibration verification was performed at the required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

Retention times (RT) of all compounds in the calibration standards were within QC limits for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples on which a NFESC Level III review was performed.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No explosive contaminants were found in the method blanks.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

b. Matrix Spike/(Matrix Spike) Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

c. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Target Compound Identification

All target compound identifications were within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

VII. System Performance

The system performance was within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

Samples T063-193-GW01-Dup and T063-193-GW01 were identified as field duplicates. No explosives were detected in any of the samples.

X. Field Blanks

No field blanks were identified in this SDG.

Ballfields Parcels at DoDHF Novato, CA Explosives - Data Qualification Summary - SDG K2502575

No Sample Data Qualified in this SDG

Ballfields Parcels at DoDHF Novato, CA Explosives - Laboratory Blank Data Qualification Summary - SDG K2502575

No Sample Data Qualified in this SDG

Analytical Results

Client: Project: Battelle Memorial Institute Novato Ballfields/G486063

Sample Matrix:

Water

Service Request: K2502571

Date Collected: 04/05/2005

Date Received: 04/08/2005

Nitroaromatics and Nitramines (Explosives)

Sample Name:

TO63-193-GW01-DUP

Lab Code:

K2502571-013

Extraction Method: Analysis Method:

EPA 3535

8330

Units: ug/L Basis: NA

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
HMX	ND U	2.0	0.46	1	04/12/05	04/14/05	KWG0505923	
RDX	ND U	2.0	0.38	1	04/12/05	04/14/05	KWG0505923	
1,3,5-Trinitrobenzene	ND U	2.0	0.38	1	04/12/05	04/14/05	KWG0505923	
1.3-Dinitrobenzene	ND U	2.0	0.27	1	04/12/05	04/14/05	KWG0505923	
TETRYL	ND U	2.0	0.37	1	04/12/05	04/14/05	KWG0505923	
Nitrobenzene	ND U	2.0	0.45	1	04/12/05	04/14/05	KWG0505923	
4-Amino-2,6-dinitrotoluene	ND U	2.0	0.53	1	04/12/05	04/14/05	KWG0505923	
2-Amino-4,6-dinitrotoluene	ND U	2.0	0.46	1	04/12/05	04/14/05	KWG0505923	
2,4,6-Trinitrotoluene	ND U	2.0	0.50	1	04/12/05	04/14/05	KWG0505923	
2,6-Dinitrotoluene	ND U	2.0	0.39	1	04/12/05	04/14/05	KWG0505923	
2,4-Dinitrotoluene	ND U	2.0	0.32	1	04/12/05	04/14/05	KWG0505923	
2-Nitrotoluene	ND U	2.0	0.32	1	04/12/05	04/14/05	KWG0505923	
4-Nitrotoluene	ND U	2.0	0.50	1	04/12/05	04/14/05	KWG0505923	
3-Nitrotoluene	ND U	2.0	0.34	1	04/12/05	04/14/05	KWG0505923	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
1-Chloro-3-nitrobenzene	66	52-135	04/14/05	Acceptable	

Comments:

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SuperSet Reference:

RR47281

Page 1 of 1

Analytical Results

Client: Project: Battelle Memorial Institute Novato Ballfields/G486063

Sample Matrix:

Water

Service Request: K2502571

Date Collected: 04/05/2005 Date Received: 04/08/2005

Nitroaromatics and Nitramines (Explosives)

Sample Name: Lab Code:

TO63-193-GW01 K2502571-014

Units: ug/L Basis: NA

Extraction Method:

EPA 3535

Level: Low

8330 Analysis Method:

		TO MITO TO	MINI	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Analyte Name	Result Q	MRL	MDL	ractor				11000
HMX	ND U	2.0	0.46	1	04/12/05	04/14/05	KWG0505923	
RDX	ND U	2.0	0.38	1	04/12/05	04/14/05	KWG0505923	
1,3,5-Trinitrobenzene	ND U	2.0	0.38	1	04/12/05	04/14/05	KWG0505923	
1,3-Dinitrobenzene	ND U	2.0	0.27	1	04/12/05	04/14/05	KWG0505923	
′	ND U	2.0	0.37	1	04/12/05	04/14/05	KWG0505923	
TETRYL Nitrobenzene	ND U	2.0	0.45	1	04/12/05	04/14/05	KWG0505923	
4-Amino-2,6-dinitrotoluene	ND U	2.0	0.53	1	04/12/05	04/14/05	KWG0505923	
	ND U	2.0	0.46	1	04/12/05	04/14/05	KWG0505923	
2-Amino-4,6-dinitrotoluene			0.50	1	04/12/05	04/14/05	KWG0505923	
2,4,6-Trinitrotoluene	ND U	2.0	0.50	1			*****************	
2.6-Dinitrotoluene	ND U	2.0	0.39	1	04/12/05	04/14/05	KWG0505923	
2,4-Dinitrotoluene	ND U	2.0	0.32	1	04/12/05	04/14/05	KWG0505923	
2,4-Dintitotolucie 2-Nitrotolucie	ND U	2.0	0.32	1	04/12/05	04/14/05	KWG0505923	
		2.0	0.50	1	04/12/05	04/14/05	KWG0505923	
4-Nitrotoluene	ND U			1	04/12/05	04/14/05	KWG0505923	
3-Nitrotoluene	ND U	2.0	0.34	1	04/12/03	04/14/03		

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1-Chloro-3-nitrobenzene	56	52-135	04/14/05	Acceptable

Comments:

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Form 1A - Organic

RR47281

Page 1 of 1

1445

Analytical Results

Battelle Memorial Institute Client: Novato Ballfields/G486063 Project:

Water Sample Matrix:

Service Request: K2502571 Date Collected: 04/05/2005 Date Received: 04/08/2005

Nitroaromatics and Nitramines (Explosives)

TO63-191-GW01 Sample Name: K2502571-015 Lab Code: **Extraction Method:**

EPA 3535 8330 Analysis Method:

Units: ug/L Basis: NA Level: Low

Extraction Date Date Dilution Lot Note Analyzed MDL Factor Extracted MRL Result O **Analyte Name** KWG0505923 04/14/05 04/12/05 1 0.46 ND U 2.0 **HMX** KWG0505923 04/12/05 04/14/05 1 0.38 ND U 2.0 **RDX** KWG0505923 04/12/05 04/14/05 0.38 1 2.0 ND U 1,3,5-Trinitrobenzene KWG0505923 04/14/05 0.27 1 04/12/05 2.0 ND U 1,3-Dinitrobenzene KWG0505923 04/14/05 1 04/12/05 0.37 2.0 ND U TETRYL KWG0505923 04/14/05 1 04/12/05 0.45 2.0 ND U Nitrobenzene 04/14/05 KWG0505923 04/12/05 1 ND U 2.0 0.53 4-Amino-2,6-dinitrotoluene KWG0505923 04/14/05 04/12/05 0.46 1 2.0 ND U 2-Amino-4,6-dinitrotoluene 04/14/05 KWG0505923 04/12/05 0.50 1 2.0 ND U 2.4.6-Trinitrotoluene KWG0505923 04/12/05 04/14/05 1 0.39 2.0 ND U 2.6-Dinitrotoluene 04/12/05 04/14/05 KWG0505923 0.32 1 2.0 ND U 2,4-Dinitrotoluene 04/14/05 KWG0505923 04/12/05 1 0.32 ND U 2.0 2-Nitrotoluene 04/14/05 KWG0505923 1 04/12/05 0.50 2.0 ND U 4-Nitrotoluene KWG0505923 04/14/05 04/12/05 0.34 1 2.0 ND U 3-Nitrotoluene

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1-Chloro-3-nitrobenzene	70	52-135	04/14/05	Acceptable

Comments:

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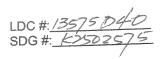
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SDG Labor METH The s	#:13575D40 #:K2502575 ratory:_Columbia Analytica HOD: HPLC Explosives (I samples listed below were ation findings worksheets.	EPA	SW 846 Me	Le ethod 8330	evel	I III/I∨	/			n find	Date: 4/3/Page: /of / Page: /of / Reviewer: / 2nd Reviewer: / dings are noted in attached
	Validation	Area							Comm	ents	
l .	Technical holding times			Ą	Sam	npling d	ates:	4/5	5/05	,	
IIa.	Initial calibration			4						***************************************	
IIb.	Calibration verification			\$	Lz	<u> 505</u>	2101	V			
111.	Blanks			A			DOMESTIC CONTROL CONTR				
IVa.	Surrogate recovery	H-0		₽							
IVb.	Matrix spike/Matrix spike du	plicate	s	N		tier	zd =	免心	find		
IVc.	Laboratory control samples			₽		cs	./0	-	(
V.	Target compound identificati	ion		A	Not	review	ed for Le	vel III vali	dation.		
VI.	Compound Quantitation and	CRQ	Ls	\$	Not	review	ed for Le	vel III vali	dation.		
VII.	System Performance			4	Not	review	ed for Le	vel III vali	dation.		
VIII.	III. Overall assessment of data										
IX.	C. Field duplicates				D:	二上					
<u>x</u> .	Field blanks										
Note: Validat	A = Acceptable N = Not provided/applicable SW = See worksheet ted Samples: ** Indicates samp		R = Rins FB = Fie	eld blank		ected	Т	D = Duplic ΓΒ = Trip I ΞΒ = Equi		<	
1	TO63-193-GW01-Dup W	11	EWF050	5123=3	3	21				31	
2	TO63-193-GW01	12				22				32	
3	TO63-191-GW01**	13			Constant of the Constant of th	23				33	
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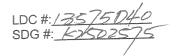
Notes:		



VALIDATION FINDINGS CHECKLIST

Page: /of 2 Reviewer: 4 2nd Reviewer: _____

Method: GC _V HPLC	Yes	No	NA	Findings/Comments
Validation Area	163	140		
Technical holding times	\overline{A}			
I technical holding times were met.	7			
ooler temperature criteria was met.				
Initial calibration				
d the laboratory perform a 5 point calibration prior to sample analysis?				
as a linear fit used for evaluation? If yes, were all percent relative standard eviations (%RSD) \leq 20%?				
as a curve fit used for evaluation? If Yes, what was the acceptance criteria sed?		/		
id the initial calibration meet the curve fit acceptance criteria?				
/ere the RT windows properly established?				
/. Continuing calibration			Π	
What type of continuing calibration calculation was performed?%D or %R				
/as a continuing calibration analyzed daily?	(_	
/ere all percent differences (%D) ≤ 15%.0 or percent recoveries 85-115%?				
Vere all the retention times within the acceptance windows?				
. Blanks	T	r ·	T	T
Vas a method blank associated with every sample in this SDG?	6		 	
Vas a method blank analyzed for each matrix and concentration?	/		-	
Vas there contamination in the method blanks? If yes, please see the Blanks alidation completeness worksheet.		/		
/I. Surrogate spikes	1 -	1 -	-	Total Control of the
Vere all surrogate %R within the QC limits?	-	 	-	
f the percent recovery (%R) of one or more surrogates was outside QC limits, was reanalysis performed to confirm %R?				
f any %R was less than 10 percent, was a reanalysis performed to confirm %R?			$\perp \! \! \! \! \! \! \! \! \! \! \perp$	
/II. Matrix spike/Matrix spike duplicates	T	1	-	
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each natrix in this SDG? If no, Indicate which matrix does not have an associated MS/MSD. Soil / Water.	No. of the state o			
Nas a MS/MSD analyzed every 20 samples of each matrix?				
Was a MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		THE PROPERTY OF THE PROPERTY O	/	
/III. Laboratory control samples	1/			
Was an LCS analyzed for this SDG? Was an LCS analyzed per extraction batch?	1/	1		



VALIDATION FINDINGS CHECKLIST

Page: 2 of 2 Reviewer: 2nd Reviewer: 2

	Yes	No	NA	Findings/Comments
Validation Area	res	INU	-17.	£ 1100000000000000000000000000000000000
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?				
IX. Regional Quality Assurance and Quality Control	Т			
Were performance evaluation (PE) samples performed?	╀			
Were the performance evaluation (PE) samples within the acceptance limits?				
X. Target compound identification		Γ		
Were the retention times of reported detects within the RT windows?	14			
XI. Compound quantitation/CRQLs	T			T
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?				
XII. System performance	1	ı	T	Total Control of the
System performance was found to be acceptable.				
XIII. Overall assessment of data	-	v	T	er Land Laboure (1994 - 1994) 19
Overall assessment of data was found to be acceptable.				
XIV. Field duplicates				
Were field duplicate pairs identified in this SDG?	/	<u> </u>		
Were target compounds idetected in the field duplicates?			-	
XV. Field blanks				
Were field blanks identified in this SDG?		/		
Were target compounds detected in the field blanks?				

SDG#: 1252575 10c#12cm2を

Initial Calibration Calculation Verification VALIDATION FINDINGS WORKSHEET

Page:__ 2nd Reviewer: Reviewer:

METHOD: GC

The calibration Factor (CF), average CF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following

calculations:

average CF = sum of the CF/number of standards %RSD = 100 * (S/X) CF = A/C

A = Area of compound, C = Concentration of compound, S = Standard deviation of the CF X = Mean of the CFs

# Standard ID Date	Version contract for				Reported	Recalculated	Reported	Recalculated	Reported	Recalciliated
1ct2 3/8/15 HHX 88400 90800 90800 10.20 1ct2 3/8/10 HHX 25200 252000 252000 5:4 1ct2 3/8/10 HHX 25200 252000 252000 5:4	*	Standard ID	Calibration Date	Compound	CF (/ std)	CF (std)	Average CF (initial)	Average CF (initial)	%RSD	%RSD
4.5 030/2 24.6-TNT 25200 252000 25/000 25/000 5.4	-	1	Control of the Contro	ナン×	88400	88400			10:2	(0,2
	-	1	12/2/2		25200	252000			5.4	5 Jun
	Tangon and Tangon						/			SAZALA LA MANDA ERIO PROPRIMENTANO ANTA PROPRIMENTA
	C									The state of the s
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Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

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SDG #: K2522575 LDC # 135/15040

Continuing Calibration Results Verification VALIDATION FINDINGS WORKSHEET

Page: 2nd Reviewer: Reviewer:

METHOD: GC

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF - CF)/ave. CF CF = A/C

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

					Reported	Recalculated	Reported	Recalculated
*	Standard ID	Calibration Date	Compound	Average CF(Ical)/ CCV Conc.	CF/Conc. CCV	CF/Conc. CCV	Q%	۵%
	7440010		×n±	02806	91600	00916		
-		1/4/05	2.4.6-MT	257000	257000	257000	< <u>~</u>	Show the second
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Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC # 135/5040 SDG #: K>\$0 25/5

VALIDATION FINDINGS WORKSHEET Surrogate Results Verification

Page: of Reviewer: 2nd reviewer:

METHOD: GC V HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found SS = Surrogate Spiked

Sample D:

Percent Difference Recalculated Percent Recovery 10 Reported Percent Recovery Surrogate Found 8,80 Surrogate Spiked 12.5 Column/Detector 0/0 ¥ -Chlwo-3-11-tropenzene Surrogate

Sample ID:

PROGRAMMENT OF THE PROGRAMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF	Percent Difference			
	Percent Recovery	Recalculated		
	Percent Recovery	Reported		
	Surrogate Found			
	Surrogate Spiked			
	Column/Detector			
ACAILLE AT I WE WANTED THE CONTRACT OF THE CON	Surrogate			

Sample D:

	Surrogate Surrogate Percent Percent Percent Spiked Found Recovery Recovery Difference	Recalculated Recalculated		
	Surroga Column/Detector Spiked			
SAII BUC BUS BUSINESSESSESSESSESSESSESSESSESSESSESSESSESS	Surrogate			

SDG #1625225/5 LDC#: (SSC)SP40

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

2nd Reviewer Page: Reviewer:

> GC /HPLC METHOD

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

Where %Recovery = 100 * (SSC - SC)/SA

RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

SSC = Spiked sample concentration SA = Spike added LCS = Laboratory Control Sample

SC = Sample concentration

LCSD = Laboratory Control Sample duplicate

Recalc. 1 7 CS/LCSD RPD Reported NH Recalc. W) Percent Recovery CSD Reported m 'W ~ D Recalc, Percent Recovery . (M) CS Reported M 00 400 M LCSD M. 100 Spike Sample Concentration 458 rcs X Sample Conf. 100 rcsp Spike 00 CS 2,4,6-Trinitrotoluene (8330) (RSK-175) (8330) (8021B) (8310)(8310) (8151)(8151)(8015)(8015)Compound Naphthalene Anthracene Benzene Gasoline Methane Dinoseb Diesel 2,4-D **HMX**

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

SDG#: 10502/15 LDC#: 38/19/20

VALIDATION FINDINGS WORKSHEET Sample Calculation Verification

Page:

> GC / HPLC METHOD:

	Were all reported results recalculated and verified for all level IV sar	Were all recalculated results for detected target compounds agree
	N/A	N N/A
ů.	\geq	8

In the initial calibration Vs= Initial volume of the sample	coga de pr	Were all recalculated results recalculated and verified for all level IV samples? Were all recalculated results for detected target compounds agree within 10% of the reported results? Were all recalculated results for detected target compounds agree within 10% of the reported results? Example: Sample ID. Sample ID. Sample ID. Sample ID. Sample ID. ID. Sample ID.
	Ws= Initial weight of the sample	
	R=Average response factor of the compound	Concentration =
RF= Average response factor of the compound	 Area or height of the compound to be measur Final Volume of extract Dilution Factor 	
ısured	(RF)(Vs or Ws)(%S/100)	Compound Name
(RF)(Vs or Ws)(%S/100) Area or height of the compound to be measured Final Volume of extract Oilution Factor Nerage response factor of the compound Concentration = Compound Name Compound Name	THE PERSON OF TH	Example:
entration= (A)/(Fv)/(Df) (RF)(Vs or Ws)(%S/100) Area or height of the compound to be measured Final Volume of extract Oilution Factor Concentration = Concentration =		ults for detected target compounds agree within 10% of the reported results?
Were all recalculated results for detected target compounds agree within 10% of the reportect (A)(Fv)(Df) (RF)(Vs or Ws)(%S/100) Sample ID. Sample ID. Sampound Name olume of extract Factor Factor Fresponse factor of the compound Concentration = Concentration = Concentration		recalculated and verified for all level IV samples?

44:	Sample ID	Compound	Reported Concentrations	Recalculated Results Concentrations	Qualifications
AND DESCRIPTION OF THE PROPERTY OF THE PROPERT					
					ан данадан айда настроительной выполнений объектору предоставления полнений полнени
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Comments: